



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,154	01/20/2004	Grant L. Hutchison	0920.0061C	7744
46157	7590	01/02/2008		EXAMINER
EDELL, SHAPIRO, & FINNAN, LLC				BLACK, LINH
1901 RESEARCH BOULEVARD, SUITE 400				
ROCKVILLE, MD 20850			ART UNIT	PAPER NUMBER
			2163	
				MAIL DATE
				DELIVERY MODE
			01/02/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

M

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/759,154	HUTCHISON ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	LINH BLACK	2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 26 September 2007.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-17 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

This communication is responsive to the Applicants' documents dated 9/26/07. Claims 1-18 are pending in the application. Claims 1, 7, and 13 are independent claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-8, 10-14, 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maier et al. (5625815), and further in view of Reiner et al. (US 6289334).

As per claims 1, 7, 13, and 5, Maier et al. teach query against a database - col. 3, line 54 to col. 4, line 6; the database includes a plurality of partitions for storing different portions of said database\_table data based on a partitioning schema – col. 2, lines 23-32; col. 3, line 54 to col. 4, line 6; database tables and catalog(s) – fig. 1, items 120, 126; each partition associated with a partition identifier and database catalog

information indicating data organization in said database – col. 2, lines 29-34; partition identification, partition's names: Old Partition, New Partition – col. 8, lines 15-23 or partition 1 and partition 2 etc...- col. 12, first paragraph; (a) retrieving information within said database catalog information associated with said database table containing said desired data and relating to the partitioning schema – col. 3, line 54 to col. 4, line 6; col. 4, line 61 to col. 5, line 3; (b) analyzing the contents of the query and the retrieved database catalog information to determine the specific partition containing the database table portion with the desired data and identifying a partition identifier associated with the specific partition - col. 3, line 54 to col. 4, line 6. However, Maier et al. do not explicitly teach (c) executing the query against said specific partition, whereby said desired data is retrieved. Reiner et al. teach a database table contained among plural independently accessible partitions – col. 2, lines 53-60; decomposing the queries for matching records in the corresponding table partition – col. 2, last paragraph; col. 9, 2<sup>nd</sup> paragraph; fig. 3B: database 72 with partition 1-3. Reiner et al. also teach an SQL query, a partitioning table, data dictionary, analyzing query – col. 34, lines 43-63. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Maier et al.'s teaching with Reiner et al.'s teaching in order to allow queries against the database be analyzed and forwarded to the appropriate partitions which helps save time and operation costs.

As per claims 2, 8, and 14, Maier et al. teach storing the retrieved database catalog information in a database catalog cache – fig. 1, items 124-126 and 116-1.

As per claims 4, 10, and 16, Maier et al. do not explicitly teach resolving the partition identifier. Reiner et al. teach a database table contained among plural independently accessible partitions – col. 2, lines 53-60; decomposing the queries for matching records in the corresponding table partition – col. 2, last paragraph; col. 9, 2<sup>nd</sup> paragraph; fig. 3B: database 72 with partition 1-3. Reiner et al. also teach an SQL query, a partitioning table, data dictionary, analyzing query – col. 34, lines 43-63. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Maier et al.'s teaching with Reiner et al.'s teaching in order to allow queries against the database be analyzed and forwarded to the appropriate partitions which helps save time and operation costs.

As per claims 6, 12, and 18, Maier et al. do not explicitly teach forwarding the retrieved data to a client application requesting table data. Reiner et al. teach generate an assembled result representative of a response to said query client application program – claim 1c; fig. 11. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Maier et al.'s teaching with Reiner et al.'s teaching in order to provide query results to the client application program.

Claims 3, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maier et al. (5625815), in view of Reiner et al. (US 6289334), and further in view of Weinberg et al. (US 20030233347).

As per claims 3, 9, and 15, Maier et al. teach the database catalog in the catalog cache - fig. 1, items 124-126 and 116-1. However, Maier and Reiner do not teach building a subset of the database catalog. Weinberg et al. teach storing and retrieving data in database systems – par. 0046; search the sub-set of catalog data using a first lookup in the sub-tables – par. 0019. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Maier et al.'s teaching with Reiner et al.'s and Weinberg's teachings in order to allow searches/queries to quickly retrieve information from the appropriate partitions.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-18 have been considered but are not persuasive. Regarding the Response dated 9/26/07, Applicants argued that the prior art does not teach "determine a specific partition from among said plurality of partitions containing the database table portion with the desired data satisfying said query and identifying a partition identifier associated with the specific partition." Examiner disagrees.

As specified in the Office Action, col. 2, lines 29-34 teaches "The present invention operates in a database computer system having memory, residing in a plurality of interconnected computer nodes, for storing database tables. Each database table or index has a plurality of columns, a primary key index based on a specified subset of the columns, and an associated table schema. In most implementations, at least some of the database tables or indexes are partitioned into a

plurality of partitions, each partition storing records having primary key values in a primary key range distinct from the other partitions."

Col. 3, line 54 to col. 4, line 6 teaches "(4) As shown in FIG. 1, the database server 102 includes a central processing unit (CPU) 110, primary memory 112, a communications interface 114 for communicating with user workstations 104, 106 as well as other system resources not relevant here. Secondary memory 116-1, 116-2, typically magnetic disc storage, in the database server 102 stores database tables 120, database indices 122, a database management system (DBMS) 124 for management of the database tables and associated data structures and resources, and one or more catalogs 126 for storing schema information about the database tables 120 as well directory information for programs used to access the database tables.

The DBMS 124 includes an SQL executor 128 for executing SQL statements (i.e., database queries) and an SQL catalog manager 130 for maintenance of the catalogs 126 and for performing database definition and restructuring operations..." It is well known in the technological art that indices are used to determine which tables, partitions, etc...contain a specific content that relating to a user's query, so the query statement can be executed against that particular table/partition etc...in order to save time and cost. Therefore, even though Maier et al. do not explicitly suggest the limitation "determining" but it is inherently done in the process of utilizing either catalogs or indexes. However, Examiner further cited Reiner et al.'s teaching in order to show that the process of determining is not novel in the art.

Reiner et al., at col. 2, line 53 to its last paragraph, teach "having a database management system (DBMS) that accesses data records stored in a database table contained among plural independently accessible partitions (e.g., data partitions contained on separate disk drives), where that DBMS has a standard interface for processing queries to access those data records... the standard interface is often called the "server" interface; it is accessed by clients that are the source of queries. A decomposition element within the parallel interface generates multiple subqueries from the intercepted query. Those subqueries, each representing a request for access to data stored in a respective partition of the table, are applied in parallel to the standard interface in lieu of the intercepted query..."; col. 9, 2nd paragraph teaches "As noted above, the decomposer 74A generates subqueries based on the conventional format query intercepted from the initiating process. For simple, single-table queries, the decomposer 74A generates corresponding .subqueries by duplicating the query and appending a predicate for matching records in the corresponding table partition. Thus, for example, a query in the form

(2) SELECT name, department\_number FROM employee WHERE  
department\_number = 10

(17) would result in the first subquery of the form:

(3) SELECT name, department\_number FROM employee WHERE  
department\_number = 10 AND employee.rowid>=0.0.1 AND  
employee.rowid<0.0.2

(18) where rowid has three parts, the last of which indicates the partition

number. Other subqueries would be of similar form, with changes to the partition numbers referenced in the rowid predicates."

Thus, Reiner et al. do teach executing a query against a specific partition.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

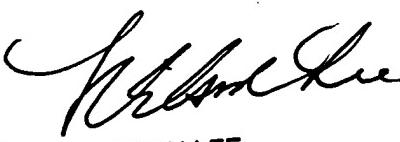
Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINH BLACK whose telephone number is 571-272-4106. The examiner can normally be reached on Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LINH BLACK  
Examiner  
Art Unit 2163

December 20, 2007



WILSON LEE  
PRIMARY EXAMINER